NOAA Teacher at Sea
Thomas Nassif
Onboard NOAA Ship NANCY FOSTER
July 15 – 30, 2005

DAILY LOG – JULY 18

Day 4: Monday, July 18, 2005
Latitude: 33°38'N
Longitude: 76°55'W
Visibility: 10 nautical miles (nm)
Wind direction: 240°
Wind speed: 13 kts
Sea wave height: 1-2'
Swell wave height: 2-3'
Sea water temperature: 28.9°C
Sea level pressure: 1018 mb
Cloud cover: 6/8, Cumulus, Altocumulus

Science & Technology Log

Today we awoke to a cloudy overcast day, providing the divers some relief from the sweltering heat we've had the past few days. The jet-black wet suits that keep the divers thermally insulated on the ocean floor can become extremely hot under a scorching sun!

Every day for the remainder of the cruise we will try to complete 2 dives in the morning and 2 dives in the afternoon, each at a different location along the seafloor. (The divers are divided into two rotating teams, so that each person will only have to dive once in the morning and once in the afternoon).

This morning the divers visited Big Fish 1 and Big Fish 2, appropriately named after an 18-inch lionfish that was caught by a local fisherman. At Big Fish 2, the dive team descended to a depth of 143 feet, and they were stunned at the sight of 5 enormous lobsters; several were hiding beneath rocks while two other lobsters chased after one another across the sand. They also spotted several large grouper (approx. 30 lbs each). They conducted a 100-meter visual transect by steadily unreeling meter tape in a straight line. Along those 100 meters of line, they

counted 17 lionfish (mostly juveniles), a big surprise considering the sandy bottom and featureless bathymetry (elevation) of the region. Lionfish typically thrive near rocky outcrops and coral reef structures that provide niches for other organisms that would serve as potential food sources (including baby shrimp, grouper, and snapper). Findings like the one at Big Fish 2 suggest that lionfish can flourish anywhere, from flat sandy bottoms to hard rocky outcrops, we suspect that as long as the water temperature remains warm enough to support a tropical habitat.

On the fourth and final dive of the day, the divers speared 3 lionfish and brought them back onto the ship for analysis. The scientists dissected the lionfish within 30 minutes of being brought onto the ship to ensure high quality stomach and reproductive system samples. First they recorded the weight, total length, and standard length (backbone only) of the lionfish. Next they removed both gonads and recorded the combined weight to determine the reproductive status of the lionfish. Finally they removed the stomach to determine the diet of the lionfish. We found two small fish that the lionfish had ingested. The lionfish remains were then frozen for future morphological (external) analysis. Scientists at the NOAA Beaufort Laboratory will conduct spine & ray counts on the fins and observe the facial features to see if there is any correlation with the development of the bearded spine, a feature that lionfish are thought to acquire as they age.

Question of the day:

Do lionfish have any predators?

Great question! Lionfish do not have any known predators, but scientists aboard the NANCY FOSTER are hoping to someday answer this question. In Florida there was a reported sighting of a goliath grouper eating a lionfish. Other than that we do not know for sure. Of course it would be a good thing to find out. If it turns out that lionfish do not have any predators, then that would be bad news for the local ecosystem. Lionfish would be able to reproduce without limit and continue eating prey until resources are heavily depleted, thereby starving other fish that are important to the fisheries industry such as grouper.

PICTURE CAPTIONS:

TRANSECT + CLIPBOARD: Diver Christine Addison conducts a visual transect survey with a clipboard and meter tape along the ocean floor. Photo taken by Doug Kesling.

LIONFISH DISSECTION: Teacher At Sea Thomas Nassif watches Roldan Munoz perform a lionfish dissection, removing the stomach and gonads for further analysis.